SEQUENCE LISTING

<110> Chesnut, Jonathan D.
Carrino, John
Leong, Louis
Madden, Knut
Gleeson, Martin
Fan, James
Brasch, Michael A.
Cheo, David
Hartley, James L.
Byrd, Devon R.N.
Temple, Gary F.

<120> Methods and Compositions for Synthesis of Nucleic Acid Molecules Using Multiple Recognition Sites

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<151> 2003-06-05

<150> US 60/385,613
<151> 2002-06-05

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<151> 2001-11-27

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<151> 2001-09-14

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gttgacattg attattgact ag 22

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cgacaggttt cccgactgga aagcgggcag tgagcgcaac gcaattaata cgcgtaccgc 240

tagccaggaa gagtttgtag aaacgcaaaa aggccatccg tcaggatggc cttctgctta 300

gtttgatgcc tggcagttta tggcgggcgt cctgcccgcc accctccggg ccgttgcttc 360

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caacagataa aacgaaaggc ccagtcttcc gactgagcct ttcgttttat ttgatgcctg 480

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gcgtaatggc tggcctgttg aacaagtctg gaaagaaatg cataaacttt tgccattctc 1560

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aagcggcagg gtcggaacag gagagcgcac gagggagctt ccagggggaa acgcctggta 2460

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cgagcaaaat ttaagctaca acaaggcaag gcttgaccga caattgcatg aagaatctgc 180

ttagggttag gcgttttgcg ctgcttcgcg atgtacgggc cagatatacg cgttgacatt 240

gattattgac tagttattaa tagtaatcaa ttacggggtc attagttcat agcccatata 300

tggagttccg cgttacataa cttacggtaa atggcccgcc tggctgaccg cccaacgacc 360

cccgcccatt gacgtcaata atgacgtatg ttcccatagt aacgccaata gggactttcc 420

attgacgtca atgggtggac tatttacggt aaactgccca cttggcagta catcaagtgt 480

atcatatgcc aagtacgccc cctattgacg tcaatgacgg taaatggccc gcctggcatt 540

atgcccagta catgacctta tgggactttc ctacttggca gtacatctac gtattagtca 600

tcgctattac catggtgatg cggttttggc agtacatcaa tgggcgtgga tagcggtttg 660

actcacgggg atttccaagt ctccacccca ttgacgtcaa tgggagtttg ttttggcacc 720

aaaatcaacg ggactttcca aaatgtcgta acaactccgc cccattgacg caaatgggcg 780

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taagctatca acaagtttgt acaaaaaagc aggctccgcg gccgcccctt caccatgnnn 960

nnnnnnaagg gtgggcgcgc cgacccagct ttcttgtaca aagtggttga tctagagggc 1020

ccgcggttcg aaggtaagcc tatccctaac cctctcctcg gtctcgattc tacgcgtacc 1080

ggttagtaat gagtttaaac gggggaggct aactgaaaca cggaaggaga caataccgga 1140

aggaacccgc gctatgacgg caataaaaag acagaataaa acgcacgggt gttgggtcgt 1200

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cgttggagtc cacgttcttt aatagtggac tcttgttcca aactggaaca acactcaacc 1740

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aaaatgagct gatttaacaa aaatttaacg cgaattaatt ctgtggaatg tgtgtcagtt 1860

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catgcatctc aattagtcag caaccatagt cccgccccta actccgccca tcccgccccc 2040

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caatacggga taataccgcg ccacatagca gaactttaaa agtgctcatc attggaaaac 5220

gttcttcggg gcgaaaactc tcaaggatct taccgctgtt gagatccagt tcgatgtaac 5280

ccactcgtgc acccaactga tcttcagcat cttttacttt caccagcgtt tctgggtgag 5340

caaaaacagg aaggcaaaat gccgcaaaaa agggaataag ggcgacacgg aaatgttgaa 5400

tactcatact cttccttttt caatattatt gaagcattta tcagggttat tgtctcatga 5460

gcggatacat atttgaatgt atttagaaaa ataaacaaat aggggttccg cgcacatttc 5520

cccgaaaagt gccacctgac gtc 5543

<210> 73
<211> 5173
<212> DNA
<213> artificial sequence

<220>
<223> Nucleotide sequence of plasmid pcDNA6.2/V5/GWD-TOPO

<220>
<221> unsure
<222> (958)..(966)
<223> N can be any nucleotide: a, t, c, g

<400> 73
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ccgcatagtt aagccagtat ctgctccctg cttgtgtgtt ggaggtcgct gagtagtgcg 120

cgagcaaaat ttaagctaca acaaggcaag gcttgaccga caattgcatg aagaatctgc 180

ttagggttag gcgttttgcg ctgcttcgcg atgtacgggc cagatatacg cgttgacatt 240

gattattgac tagttattaa tagtaatcaa ttacggggtc attagttcat agcccatata 300

tggagttccg cgttacataa cttacggtaa atggcccgcc tggctgaccg cccaacgacc 360

cccgcccatt gacgtcaata atgacgtatg ttcccatagt aacgccaata gggactttcc 420

attgacgtca atgggtggag tatttacggt aaactgccca cttggcagta catcaagtgt 480

atcatatgcc aagtacgccc cctattgacg tcaatgacgg taaatggccc gcctggcatt 540

atgcccagta catgacctta tgggactttc ctacttggca gtacatctac gtattagtca 600

tcgctattac catggtgatg cggttttggc agtacatcaa tgggcgtgga tagcggtttg 660

actcacgggg atttccaagt ctccacccca ttgacgtcaa tgggagtttg ttttggcacc 720

aaaatcaacg ggactttcca aaatgtcgta acaactccgc cccattgacg caaatgggcg 780

gtaggcgtgt acggtgggag gtctatataa gcagagctct ctggctaact agagaaccca 840

ctgcttactg gcttatcgaa attaatacga ctcactatag ggagacccaa gctggctagt 900

taagctatca acaagtttgt acaaaaaagc aggctccgcg gccgcccctt caccatgnnn 960

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ggttagtaat gagtttaaac gggggaggct aactgaaaca cggaaggaga caataccgga 1140

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ttgttcataa acgcggggtt cggtcccagg gctggcactc tgtcgatacc ccaccgagac 1260

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aaaatgagct gatttaacaa aaatttaacg cgaattaatt ctgtggaatg tgtgtcagtt 1860

agggtgtgga aagtccccag gctccccagc aggcagaagt atgcaaagca tgcatctcaa 1920

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gcgaaacccg acaggactat aaagatacca ggcgtttccc cctggaagct ccctcgtgcg 3540

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gccacctgac gtc 5173

<210> 74
<211> 69
<212> DNA
<213> artificial sequence

<220>
<223> Partial sequence of pENTR/SD-dTOPO

<220>
<221> unsure
<222> (64)..(69)
<223> N can be any nucleotide: a, t, c, g

<400> 74
ttgtacaaaa aagcaggctc cgcggccgcc ttgtttaact ttaagaagga gcccttcacc 60

atgnnnnnn 69

<210> 75
<211> 52
<212> DNA
<213> artificial sequence

<220>
<223> Nucleotide sequence of TOPO-D71

<400> 75
ggccgccttg tttaacttta agaaggagcc cttcaccgac tatgtacagtt g 52

<210> 76
<211> 31
<212> DNA
<213> artificial sequence

<220>
<223> Nucleotide sequence of TOPO-D73

<400> 76
ggccgccccc ttcaccgact atgtacagtt g 31

<210> 77
<211> 28
<212> DNA
<213> artificial sequence

<220>
<223> Nucleotide sequence of TOPO-D75

<400> 77
cgcgcccacc cttgacatag tacagttg 28

<210> 78
<211> 14
<212> PRT
<213> artificial sequence

<220>
<223> Partial amino acid sequence of pENTR-dTOPO and pcDNAGW-dTOPO

<400> 78

Leu Tyr Lys Lys Ala Gly Ser Ala Ala Ala Pro Phe Thr Met
1 5 10

<210> 79
<211> 13
<212> PRT
<213> artificial sequence

<220>
<223> Partial amino acid sequence of pENTR/SD-dTOPO, pENTR-dTOPO, and pcDNAGW-dTOPO

<400> 79

Lys Gly Gly Arg Ala Asp Pro Ala Phe Leu Tyr Lys Val
1 5 10

<210> 80
<211> 15
<212> DNA
<213> artificial sequence

<220>
<223> Product of binding a topoisomerase to part of a nucleic acid molecule

<220>
<221> unsure
<222> (13)..(15)
<223> N can be any nucleotide: a, t, c, g

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cccttcacca tgnnn 15

<210> 81
<211> 15
<212> DNA
<213> Unknown

<220>
<223> 15 bp core region of the wildtype att site

<400> 81
gctttttat actaa 15

<210> 82
<211> 21
<212> DNA
<213> Unknown

<220>
<223> att site

<400> 82
caacttttt atacaaagtt g 21

<210> 83
<211> 25
<212> DNA
<213> Unknown

<220>
<223> attB1 site

<400> 83
agcctgcttt tttgtacaaa cttgt 25

<210> 84
<211> 233
<212> DNA
<213> Unknown

<220>
<223> attP1 site

<400> 84
tacaggtcac taataccatc taagtagttg attcatagtg actggatatg ttgtgtttta 60

cagtattatg tagtctgttt tttatgcaaa atctaattta atatattgat atttatatca 120

ttttacgttt ctcgttcagc ttttttgtac aaagttggca ttataaaaaa gcattgctca 180

tcaatttgtt gcaacgaaca ggtcactatc agtcaaaata aaatcattat ttg 233

<210> 85
<211> 100
<212> DNA
<213> Unknown

<220>
<223> attL1 site

<400> 85
caaataatga ttttatttttg actgatagtg acctgttcgt tgcaacaaat tgataagcaa 60

tgctttttta taatgccaac tttgtacaaa aaagcaggct 100

<210> 86
<211> 125
<212> DNA
<213> Unknown

<220>
<223> attR1 site

<400> 86
acaagtttgt acaaaaaagc tgaacgagaa acgtaaaatg atataaatat caatatatta 60

aattagattt tgcataaaaa acagactaca taatactgta aaacacaaca tatccagtca 120

ctatg 125

<210> 87
<211> 27
<212> DNA
<213> Unknown

<220>
<223> attB0 site

<400> 87
agcctgcttt tttatactaa cttgagc 27

<210> 88
<211> 27

<212> DNA
<213> Unknown

<220>
<223> attP0 site site

<400> 88
gttcagcttt tttatactaa gttggca 27

<210> 89
<211> 27
<212> DNA
<213> Unknown

<220>
<223> attL0 site

<400> 89
agcctgcttt tttatactaa gttggca 27

<210> 90
<211> 27
<212> DNA
<213> Unknown

<220>
<223> attR0 site

<400> 90
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<210> 91
<211> 27
<212> DNA
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<220>
<223> attP1 site

<400> 91
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<210> 92
<211> 27
<212> DNA
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<220>
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<210> 93
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<400> 93
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<210> 94
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<212> DNA
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<220>
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<400> 94
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<210> 95
<211> 27
<212> DNA
<213> Unknown

<220>
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<400> 95
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<210> 96
<211> 27
<212> DNA
<213> Unknown

<220>
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acccagcttt cttgtacaaa gttggca 27

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<400> 98
caactttatt atacaaagtt gt 22

<210> 99
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<220>
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<400> 99
gttcaacttt attatacaaa gttggca 27

<210> 100
<211> 24
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<220>
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<400> 100
caactttatt atacaaagtt ggca 24

<210> 101
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<220>
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caacttttct atacaaagtt gt 22

<210> 103
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<220>
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<400> 103
gttcaacttt tctatacaaa gttggca 27

<210> 104
<211> 24
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<220>
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<400> 104
caacttttct atacaaagtt ggca 24

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caacttttgt atacaaagtt ggca 24

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gttcaacttt tgtatacaaa gttgt 25

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<210> 111
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<400> 111
gttcaacttt ttcgtacaaa gttggca 27

<210> 112
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<220>
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<400> 112
caacttttttc gtacaaagtt ggca 24

<210> 113
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<220>
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<400> 113
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<210> 114
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<220>
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<400> 114
caacttttg gtacaaagtt gt 22

<210> 115
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<400> 115
gttcaacttt ttggtacaaa gttggca 27

<210> 116
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<400> 116
caacttttg gtacaaagtt ggca 24

<210> 117
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<400> 117
gttcaacttt ttggtacaaa gttgt 25

<210> 118
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<400> 118
caacttttta atacaaagtt gt 22

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<400> 119
gttcaacttt ttaatacaaa gttggca 27

<210> 120
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<220>
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<400> 120
caacttttta atacaaagtt ggca 24

<210> 121
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<210> 122
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<212> DNA
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<220>
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<400> 122
atgggatctg ataaa 15

<210> 123
<211> 19
<212> DNA
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<400> 123
caccatggga tctgataaa 19

<210> 124
<211> 43
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<400> 124
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<210> 126
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<220>
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<400> 126
caacactatc ggaata 16

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<400> 127
gctcaccatg gatgatgata tcgc 24

<210> 128
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<400> 128
ggaggagcaa tgatcttgat cttc 24

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<400> 129
cacggatccg ctcaccatgg atgatgatat cgc 33

<210> 130
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<400> 130
cacaagcttg gaggagcaat gatcttgatc ttc 33

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<220>
<223> PCR Primer

<400> 131
atggctagca aaggagaaga acttt 25

<210> 132
<211> 25
<212> DNA
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<220>
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<400> 132
ttatttgtag agctcatcca tgcca 25

<210> 133
<211> 29
<212> DNA
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<220>
<223> PCR Primer

<400> 133
gatgactcgt aatacgactc actataggg 29

<210> 134
<211> 24
<212> DNA
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<220>
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<400> 134
gatgactcgt aatacgactc acta 24

<210> 135

<211> 11
<212> DNA
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<220>
<223> 5' end of Element 2

<400> 135
ggccataagg g 11

<210> 136
<211> 11
<212> DNA
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<220>
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<400> 136
gttccgaagg g 11

<210> 137
<211> 11
<212> DNA
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<220>
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<400> 137
ggcctaaagg g 11

<210> 138
<211> 33
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<220>
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<400> 138
cggaacaaat tgaaattctt cctcgggaag tgg 33

<210> 139
<211> 12
<212> DNA
<213> Unknown

<220>
<223> TOPO-D70 5' end

<400> 139
ctgatacatg tc 12

<210> 140
<211> 48
<212> DNA

<213> Unknown

<220>
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<220>
<221> misc_feature
<222> (43)..(48)
<223> n is a, c, g, or t

<400> 140
ttgtacaaaa aagacggctc cgcggccgcc cccttcacca tgnnnnnn 48

<210> 141
<211> 12
<212> DNA
<213> Unknown

<220>
<223> TOPO-D74 5' end

<400> 141
cgggggaagt gg 12

<210> 142
<211> 45
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<213> Unknown

<220>
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<220>
<221> misc_feature
<222> (1)..(6)
<223> n is a, c, g, or t

<400> 142
nnnnnnaagg gtgggcgcgc cgacccagct ttcttgtaca aagtg 45